MODULE HANDBOOK

	UNIVERSITAS PADJADJARAN **FACULTY OF MATHEMATICS AND NATURAL SCIENCES** **BACHELOR OF BIOLOGY PROGRAMME**	**COURSE CODE:** **D10D-601014**
Module designation	Phytohormone Physiology	
Semester in which the module is taught	5	
Person(s) responsible for the module	1. Dr. M. Nurzaman 2. Dr. Tia Setiawati 3. Rusdi, Ph.D	
Medium of instruction	Indonesian	
Relation to curriculum	Elective course	
Teaching methods	Lectures, discussions, cooperative learning, project based learning and inquiry learning	
Workload	Total workload : 5440 minutes = 90.67 hours Lectures, discussions, cooperative learning, and inquiry learning : 2 x 50 minutes x 16 weeks = 1600 minutes = 26.67 hours Exercises : 2 x 60 minutes x 16 weeks = 1920 minutes = 32 hours Self-study : 2 x 60 minutes x 16 weeks = 1920 minutes = 32 hours	
Credit points	2,00 (3,62 ECTS)	
Required and recommended prerequisites for joining the module	Plant Physiology Plant Structure and Development	
Module objectives/intended learning outcomes	1. Explain the definition and classification of phytohormones based on their physiological functions and roles 2. Apply understanding of the main biosynthesis pathways and transport mechanisms of phytohormones in plant tissues 3. Determine the role of auxin in cell division and elongation as well as root and shoot differentiation 4. Apply understanding of the role of cytokinin and gibberellin as well as their synergistic and antagonistic interactions in plant development 5. Identifying the function of abscisic acid (ABA) in stress response and seed dormancy, and the role of ethylene in fruit ripening and abscission of fruit leaves 6. Analyzing phytohormone interactions and phytohormone balance regulation in C4 plant physiology 7. Identifying the functions of brassinosteroids and jasmonates in cell development and defense responses and their signaling mechanisms 8. Evaluating the principles and innovations of phytohormone applications in agriculture, e.g., tissue culture to increase yields, including their environmental impacts	
Contents	1. Classification of Phytohormones 2. Biosynthesis and Transportation of Phytohormones 3. The Role of Auxin in Growth and Development 4. The Role of Cytokinin and Gibberellin 5. The Role of Abscisic Acid and Ethylene 6. Interactions between Phytohormones 7. Brassinosteroids and Jasmonates 8. Applications of Phytohormones in Agriculture	
Examination forms	Quiz, midterm exam, assignment, and final exam	
Study and examination requirements	The minimum attendance in lectures is 80%. Final grades are evaluated based on quiz (10%), midterm exam (15%), assignment (10%), final exam (15%), project and participation (50%)	
Reading lists	1. Peter J. Davies. 1995. Plant Hormones: Physiology, Biochemistry and Molecular Biology. Springer 2. Peter J. Davies. 1987. Plant Hormones and their Role in Plant Growth and Development. Martinus Nijhof Publisher 3. Girdhar K. Pandey (eds.). 2017. Mechanism of Plant Hormone Signaling under Stress. John Wiley & Sons, Inc. 4. Li, J., Li, C., & Smith, S. M. (Eds.). (2017). *Hormone metabolism and signaling in plants*. Academic Press.	